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ATORVASTATIN WORSENS GLUCOSE METABOLISM AND INSULIN SENSITIVITY IN HYPERCHOLESTEROLEMIC PATIENTS

ACC Poster Contributions
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Background: We hypothesized atorvastatin, particularly at high dose, may increase insulin levels and worsen glucose metabolism with reducing plasma levels of adiponectin and insulin sensitivity in hypercholesterolemic patients.

Methods: This was a randomized, single-blind, placebo-controlled, parallel study. Age, sex, and body mass index were matched. Forty-four patients were given on placebo and 42, 44, 43, and 40 patients were given daily on atorvastatin 10, 20, 40, and 80 mg, respectively during a 2 month treatment period.

Results: Atorvastatin 10, 20, 40, and 80 mg significantly reduced LDL cholesterol (mean % changes; 39, 47, 52, and 56%) and apolipoprotein B levels (33, 37, 42, and 46%) after 2 months therapy when compared with baseline (all $P<0.001$ by paired t-test) or when compared with placebo ($P<0.001$ by ANOVA). Atorvastatin 10, 20, 40, and 80 mg significantly increased insulin (25, 42, 31, and 45%) and glycated hemoglobin levels (2, 5, 5, and 5%) from baseline (all $P<0.05$ by paired t-test) or when compared with placebo ($P=0.009$ for insulin and $P=0.008$ for glycated hemoglobin by ANOVA). Atorvastatin 10, 20, 40, and 80 mg decreased plasma adiponectin levels (4, 10, 3, and 9%) and decreased insulin sensitivity (1, 3, 3, and 4%) when compared with baseline ($P=0.124$, $P=0.004$, $P=0.084$, and $P=0.040$ for adiponectin; $P=0.312$, $P=0.008$, $P<0.001$, and $P=0.008$ for insulin sensitivity by paired t-test) or when compared with placebo ($P=0.183$ for adiponectin and $P=0.033$ for insulin sensitivity by ANOVA). However, the magnitude of these percent changes (glycated hemoglobin, insulin, adiponectin, and QUICKI) were not significantly different among the four different doses of atorvastatin despite dose-dependent changes in LDL cholesterol and apolipoprotein B reduction.

Conclusions: Atorvastatin significantly increased insulin and glycated hemoglobin levels and reduced insulin sensitivity in hypercholesterolemic patients independent of dosage and the extent of LDL cholesterol and apolipoprotein B reduction.